

WHAT IS CLAIMED IS:

- 1                   1.     A folding knife comprising:  
2                   a reference piece having an arcuate slot with a convex extension slot positioned at  
3 one end of the arcuate slot;  
4                   a latch cam having an offset pin at least partially engaged in at least one of the  
5 arcuate slot or convex extension slot;  
6                   a blade having a hole configured to receive the latch cam; and  
7                   a spring mechanically coupled to the offset pin and configured to exert a force on  
8 the offset pin in a direction of blade opening
- 1                   2.     The knife of Claim 1, further comprising:  
2                   a pivot pin; and  
3                   wherein the blade further comprises an additional hole configured to receive the  
4 pivot pin, and the blade is configured to rotate about an axis of the pivot pin.
- 1                   3.     The knife of Claim 1, wherein the reference piece comprises a liner.
- 1                   4.     The knife of Claim 1, wherein the reference piece comprises a handle.
- 1                   5.     The knife of Claim 1, wherein the offset pin is positioned substantially in  
2 the convex extension slot when the blade of the knife is rotated less than a predetermined angle.
- 1                   6.     The knife of Claim 5, wherein the force exerted by the spring on the offset  
2 pin is substantially impeded by at least one wall of the convex extension slot.
- 1                   7.     The knife of Claim 1, wherein the offset pin is positioned substantially in  
2 the arcuate slot when the blade of the knife is rotated greater than a predetermined angle.
- 1                   8.     The knife of Claim 7, wherein the force exerted by the spring on the offset  
2 pin substantially assists the opening of the blade.
- 1                   9.     The knife of Claim 7, wherein the force exerted by the spring on the offset  
2 pin rotates open the blade without additional external force.

1                   10.     The knife of Claim 1, further comprising:  
2                   a flipper positioned on a side of the knife opposite a side from which the blade is  
3 removed, the flipper configured to receive an external force that at least partially rotates open the  
4 blade.

1                   11.     The knife of Claim 10, wherein the flipper comprises a protrusion on the  
2 knife extending through the side of the knife opposite the side from which the blade is removed.

1                   12.     The knife of Claim 11, wherein the blade opens substantially under the  
2 force of the spring when an edge of the flipper is flush with an edge of a knife handle.

1                   13.     The knife of Claim 11, wherein the blade opens substantially under the  
2 force of the spring when an edge of the flipper is above an edge of a knife handle.

1                   14.     The knife of Claim 1, further comprising a stud mechanically coupled to  
2 the blade and configured to receive an external force that at least partially rotates open the blade.

1                   15.     The knife of Claim 1, wherein the spring comprises a torsional spring  
2 wound around a pivot axis of the blade.

1                   16.     The knife of Claim 1, wherein the spring substantially rotates the blade to  
2 a fully open position when the offset pin is positioned substantially within the arcuate slot.

1                   17.     The knife of Claim 1, wherein the spring comprises:  
2 a first spring positioned to a left of the blade; and  
3 a second spring positioned to a right of the blade.

1                   18.     The knife of Claim 1, further comprising a handle configured to position a  
2 portion of the spring.

1                   19.     The knife of Claim 1, wherein an angle from a line tangent to the arcuate  
2 slot at a connection to the convex extension slot to a centerline of the convex extension slot  
3 measures less than 180 degrees.

1                   20.     The knife of Claim 1, wherein an angle from a line tangent to the arcuate  
2 slot at a connection to the convex extension slot to a centerline of the convex extension slot  
3 measures less than 135 degrees.

1                   21.     The knife of Claim 1, wherein an angle from a line tangent to the arcuate  
2 slot at a connection to the convex extension slot to a centerline of the convex extension slot  
3 measures greater than 90 degrees.

1                   22.     A folding knife comprising:  
2                   a latch cam having an offset pin;  
3                   a liner having an arcuate slot and a convex extension slot, and configured to  
4 position the offset pin in the convex extension slot when the knife is in a closed position and  
5 position the offset pin in the arcuate slot when the knife is fully open;  
6                   a blade configured to rotate about a pivot axis, and having a hole configured to  
7 receive the latch cam, the latch cam rotating in a direction that is opposite to a direction of blade  
8 rotation when the blade is open less than a predetermined angle.

1                   23.     The knife of Claim 22, further comprising:  
2                   a torsional spring configured to exert a force on the blade in the direction of blade  
3 opening.

1                   24.     The knife of Claim 23, wherein the torsional spring exerts a force  
2 sufficient to open the blade to a fully open position when the offset pin is located substantially  
3 within the arcuate slot.

1                   25.     A method of positioning a blade of a folding knife, the method  
2 comprising:  
3                   receiving at a closed knife an external force configured to open the blade;  
4                   moving a position of an offset cam pin from within a convex extension to  
5 substantially within an arcuate slot; and  
6                   applying an opening force configured to open the blade to a fully open position  
7 without additional external force.

1                   26.     The method of Claim 25, wherein the act of moving the position of the  
2 offset cam pin comprises rotating a latch cam positioned in a hole in the blade to move the offset  
3 cam pin from the convex extension to substantially within the arcuate slot.

1                   27.     The method of Claim 25, wherein the act of moving the position of the  
2 offset cam pin comprises rotating a latch cam in a direction that is opposite to a direction of  
3 rotation of the blade.

1                   28.     The method of Claim 25, wherein the act of applying the opening force  
2 comprises applying a torsional force to the blade.

1                   29.     The method of Claim 25, wherein the act of applying the opening force  
2 comprises applying a force to the blade using a torsional spring.

1                   30.     A folding knife comprising:  
2 means for receiving at a closed knife an external force configured to open a blade;  
3 means for repositioning an offset cam pin from within a convex extension to  
4 substantially within an arcuate slot; and  
5 means for applying an opening force configured to open the blade to a fully open  
6 position without additional external force.  
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